

OPTICAL PHENOMENA.

SOLAR HALOS.

Solar halos were observed in the various states and territories during the month, as follows:

Alabama.—11th, 16th.
Arizona.—30th.
California.—3d, 7th, 8th, 13th, 15th, 16th, 21st, 22d, 27th, 28th, 30th, 31st.
Colorado.—7th, 26th, 29th.
Dakota.—8th, 9th, 11th, 15th, 27th, 29th.
Florida.—6th, 20th.
Georgia.—2d, 8th, 11th.
Idaho.—10th, 19th.
Illinois.—3d, 14th, 17th, 18th, 24th, 25th, 27th.
Indiana.—3d, 4th, 7th.
Iowa.—2d, 4th, 20th, 21st.
Kansas.—7th, 19th.
Kentucky.—9th.
Maine.—8th, 19th.
Maryland.—24th, 25th, 27th.
Massachusetts.—8th, 18th, 24th, 26th, 27th.
Michigan.—11th, 12th, 14th, 15th, 22d, 23d, 24th, 28th.
Minnesota.—3d, 16th, 24th, 26th.
Missouri.—8th.
Montana.—27th.
Nebraska.—31st.
New York.—8th, 11th, 15th, 20th, 25th, 27th, 28th, 29th.
North Carolina.—4th, 8th, 12th, 15th, 16th, 26th, 29th.
Ohio.—5th, 7th, 11th, 13th, 14th, 17th, 19th, 24th to 28th.
Oregon.—15th, 16th, 31st.
South Carolina.—3d, 4th, 5th, 8th, 25th, 26th, 27th, 30th.
Tennessee.—2d, 4th, 8th, 11th, 16th, 17th, 18th, 25th.
Utah.—22d.
Vermont.—25th, 27th.
Virginia.—9th, 10th, 16th.
Washington Territory.—1st, 7th, 24th, 31st.
Wisconsin.—3d, 12th, 13th, 17th.
Wyoming.—1st, 7th, 9th, 11th, 20th, 21st, 28th, 29th.

LUNAR HALOS.

Lunar halos were observed in the various states and territories, as follows:

Alabama.—16th.
Arizona.—14th, 16th, 17th, 22d, 23d, 24th.
California.—14th, 16th, 17th, 19th to 23d, 27th.
Colorado.—11th, 16th.
Connecticut.—11th, 15th.
Dakota.—15th, 16th, 17th.
District of Columbia.—12th, 18th, 19th.
Florida.—11th, 19th.
Georgia.—10th, 11th, 19th.
Idaho.—17th, 20th.
Illinois.—13th, 17th, 18th, 19th, 24th.
Indiana.—13th, 17th, 18th, 19th.
Iowa.—14th, 16th, 19th, 20th.
Kansas.—7th, 16th, 18th, 21st, 22d.
Kentucky.—16th, 17th, 19th.
Louisiana.—18th.
Massachusetts.—8th, 11th, 14th, 18th, 19th.
Michigan.—12th, 14th, 16th to 19th, 22d, 24th, 25th.
Minnesota.—14th.
Missouri.—18th, 19th.
Montana.—15th, 17th, 18th, 20th.
Nebraska.—11th, 12th, 15th, 16th.
Nevada.—16th.
New Hampshire.—14th.
New York.—11th, 13th, 14th, 17th.
North Carolina.—16th.
Ohio.—11th, 13th, 17th, 18th, 19th, 24th.
Pennsylvania.—11th, 15th, 16th, 18th.
South Carolina.—11th, 16th, 19th, 25th.
Tennessee.—14th to 19th.

Texas.—9th, 10th, 13th to 21st.

Utah.—22d.

Vermont.—11th, 17th, 18th.

Virginia.—5th, 9th, 11th, 12th, 15th to 19th.

Washington Territory.—10th, 16th, 18th, 20th.

Wisconsin.—5th, 13th, 17th.

Wyoming.—11th, 15th.

The phases of the moon during March were: new moon, 5th, 5.04 p. m.; first quarter, 13th, 8.17 a. m.; full moon, 19th, 11.36 p. m.; last quarter, 26th, 5.44 a. m.; apogee, 1st, 11.15 a. m.; perigee, 17th, 5.14 a. m.

MIRAGE.

Indianola, Texas, 5th, 17th, 22d

Salina, Kansas, 8th, 9th, 31st.

Webster, Dakota, 16th, 22d, 30th.

Traverse City, Michigan, 23d.

Stowe, Vermont, 27th.

MISCELLANEOUS PHENOMENA.

SUN SPOTS.

Prof. David P. Todd, director of the Lawrence Observatory, Amherst, Massachusetts, furnishes the following record of sun spots for March, 1886:

Date— March, 1886. Standard time.	No. of new.		Disappeared by solar rotation.		Reappeared by solar rotation.		Total No. visible.		Remarks.
	Gr'ps	Spots	Gr'ps	Spots	Gr'ps	Spots	Gr'ps	Spots	
1, 1 p. m....	1	20†	0	0	5	65†	Broad areas of faculae. Do.
2, 2 p. m....	0	10†	0	0	.....	.....	5	75†
4, 12 m....	4	40†	.....	.....	4	15†	8	110†
5, 4 p. m....	1	60†	0	0	0	10†	9	170†	
6, 5 p. m....	0	0	0	0	0	0	8	160†	
7, 4 p. m....	0	0	1	10†	0	0	6	130†	Broad areas of faculae. Do.
10, 10 a. m....	0	0	.....	.....	0	0	5	85†
14, 10 a. m....	0	0	.....	.....	0	0	3	20†
15, 4 p. m....	0	0	1	15†	0	0	2	5	
16, 5 p. m....	1	5	1	2	0	0	2	1	
17, 4 p. m....	0	9†	1	3	0	0	1	15†	
23, 4 p. m....	4	30†	.....	.....	3	20†	5	35†
24, 5 p. m....	0	10†	0	0	.....	.....	5	45†
26, 10 a. m....	1	5†	.....	.....	.....	.....	4	30†
28, 10 a. m....	0	25†	0	0	.....	.....	4	55†

Faculae were seen at the time of every observation. 1 Approximated.
 Note.—From the 6th to 16th, one of the spots very large.

Mr. H. D. Govey, of North Lewisburg, Champaign county, Ohio, reports having observed sun spots on the following dates: 1st, 3d, 4th, 6th, 10th, 12th, 15th, 17th, 18th, 19th, 23d, 24th, 31st.

SUNSETS.

The characteristics of the sky, as indicative of fair or foul weather for the succeeding twenty-four hours, have been observed at all Signal Service stations. Reports from one hundred and sixty-two stations show 5,019 observations to have been made, of which four were reported doubtful; of the remainder, 5,015, there were 4,416, or 88.1 per cent., followed by the expected weather.

EARTHQUAKES.

Butlerville, Jennings county, Indiana: a distinct shock of earthquake was felt about 10 a. m. of the 1st, lasting ten seconds; vibrations from northeast to southwest.

Makanda, Jackson county, Illinois: an earthquake shock occurred at 11.59 p. m. of the 17th, which was generally felt throughout the county.

Cairo, Illinois: a heavy shock of earthquake was felt at 11.15 a. m. of the 18th, lasting about fifteen seconds; vibrations from west to east; no damage was reported.

PRAIRIE FIRES.

Prairie fires were reported from the following stations:

Arkansas.—Fort Smith, 16th, 17th.

Dakota.—Yankton, 24th.

Indian Territory.—Fort Reno, 4th, 5th, 10th to 18th, 20th to 26th, 28th, 31st; Fort Sill, 5th, 8th, 10th to 13th, 17th to 26th; Fort Supply, 17th, 22d.

Kansas.—Concordia, 23d, 24th, 26th.

Montana.—Fort Keogh, 26th.